AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method of selecting at least one routing path between an access node and at least one of a plurality of gateways comprising:

each at least one gateway originating and <u>simultaneously</u> broadcasting beacons <u>from a plurality of radios</u> over a plurality of channels, <u>each channel</u> different from other of the plurality of channels, at least one radio broadcasting the beacons over a corresponding one of the plurality of channels, the beacons being broadcast over each of the plurality of channels at a predetermined rate;

the access node <u>simultaneously</u> receiving over a plurality of channels <u>with a plurality of access node radios</u>, at least one access node radio <u>corresponding with each of the plurality of channels</u>, beacons from at least one upstream access node or gateway, the beacons providing information of selected upstream paths between each of the upstream access nodes and the plurality of gateways; and

the access node selecting a routing path between the access node and at least one of the plurality of gateways, based on a persistence of successfully received beacons, the selected routing path including multiple <u>different</u> channels;

the access node <u>simultaneously</u> re-broadcasting beacons <u>with the</u> <u>plurality of access node radios, the re-broadcast beacons</u> corresponding to the selected routing path, over each of the plurality of channels, the rebroadcast <u>beacons modified by the access node to include information of the selected</u> routing path.

2. (Previously Presented) The method of claim 1, wherein the plurality of channels comprises transmission channels according to at least two of 802.11(a), 802.11(b), 802.11(g), 802.11(n) transmission protocols.

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- 3. (Cancel) The method of claim 1, wherein the access node determining an optimal set of routing paths comprises determining a path quality of the available paths, and selecting the optimal paths based upon a selection criteria.
- 4. (Previously Presented) The method of claim 1, wherein the selection criteria is additionally based upon an information throughput of the routing paths.
- 5. (Previously Presented) The method of claim 1, wherein the selection criteria is additionally based upon a number of hops of the routing paths.
- 6. (Cancel)
- 7. (Cancel)
- 8. (Cancel)
- 9. (Currently Amended) The method of claim 1, wherein beacons that are successfully received by the upstream access nodes are rebroadcast by the upstream access nodes over multiple <u>different</u> channels after the beacons have been modified to include selected upstream routing information of the upstream access nodes.
- 10. (Cancel)
- 11. (Currently Amended) The method of claim 1, wherein selected upstream paths between each upstream access node and upstream gateways includes a combination of paths, over multiple <u>different</u> channels, and upstream paths are selected based on a persistence of successfully received broadcast and rebroadcast beacons.

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- 12. (Original) The method of claim 1, wherein selected upstream paths between each upstream access node and upstream gateways are selected based upon path quality.
- 13. (Original) The method of claim 12, wherein the path quality is determined by an information throughput of the upstream paths.
- 14. (Original) The method of claim 12, wherein the path quality is determined by a number of hops included within the upstream paths.
- 15. (Previously Presented) The method of claim 1, further comprising the access node transmitting a modified beacon over a plurality of channels, the modified beacon including the optimal set of routing paths between the access node and the at least one upstream gateway.
- 16. (Original) The method of claim 1, further comprising:
 sending a reverse beacon to the gateway; and
 constructing a client tree in the gateway, wherein the gateway has at
 least one path including multiple channels to all clients.
- 17. (Currently amended) A method of routing data packets through a wireless mesh network, the mesh network comprising at least one gateway and a plurality of access nodes, the method comprising:

each gateway originating and <u>simultaneously</u> broadcasting beacons <u>with</u> a <u>plurality of radios</u> over a plurality of channels, the beacons being broadcast <u>by</u> <u>each of the radios</u> over each of the plurality of channels at a predetermined rate;

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each access node <u>simultaneously</u> receiving over a plurality of channels, beacons <u>over a plurality of radios</u> from at least one upstream device;

if the at least one upstream device is an upstream access node, the indicators providing information of selected upstream paths between each of the upstream access nodes and upstream gateways; and

each access node determining an optimal set of routing paths between the access node and at least one upstream gateway, based upon a persistence of successfully received indicators, the optimal set of routing paths including a combination of paths over multiple channels.

- 18. (Original) The method of claim 17, wherein the plurality of channels comprises transmission channels according to at least one of 802.11(a), 802.11(b), 802.11(g), 802.11(n) transmission protocols.
- 19. (Cancel)
- 20. (Cancel)
- 21. (Previously Presented) The method of claim 17, wherein the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information.
- 22. (Original) The method of claim 17, wherein selected upstream paths between each upstream access node and upstream gateways can include a combination of paths, over multiple channels.
- 23. (Previously Presented) The method of claim 17, further comprising the access node transmitting a modified beacons over a plurality of channels, the

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modified beacons including the selected routing path between the access node and the at least one upstream gateway.

- 24. (Original) The method of claim 17, further comprising sending a reverse beacon to the gateway; and constructing a client tree in the gateway, wherein the gateway has at least one path including multiple channels to all clients.
- 25. (Currently amended) An access node comprising:

a plurality of radios operable on a plurality of transmission channels, the radios <u>simultaneously</u> receiving over <u>each of</u> a plurality of channels, indicators from at least one upstream access node, the indicators providing information of selected upstream paths between each of the upstream access nodes and upstream gateways; and

means for determining an optimal set of routing paths between the access node and at least one upstream gateway, based upon a persistence of successfully received indicators, the optimal set of routing paths including a combination of paths over multiple channels.

- 26. (Previously Presented) The access node of claim 25, wherein the plurality of channels comprises transmission channels according to at least one of 802.11(a), 802.11(b), 802.11(g), 802.11(n) transmission protocols.
- 27. (Cancel)
- 28. (Previously presented) The access node of claim 25, wherein the indicators comprise beacons originating at the upstream gateways.

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- 29. (Previously presented) The access node of claim 28, wherein the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information.
- 30. (Previously presented) The access node of claim 25, wherein selected upstream paths between each upstream access node and upstream gateways can include a combination of paths, over multiple channels.
- 31. (Previously presented) The access node of claim 25, further comprising the access node transmitting a modified indicator over a plurality of channels, the modified indicator including the optimal set of routing paths between the access node and the at least one upstream gateway.
- 32. (Currently amended) A mesh network comprising:

at least one gateway, each gateway <u>simultaneously</u> transmitting beacons <u>with a plurality of radios</u> through each of a plurality of transmission channels at a predetermined rate;

a plurality of access nodes, each access node <u>simultaneously</u> receiving beacons <u>over a plurality of radios</u>, through at least one of the transmission channels, each access node selecting routing paths based upon a persistence of successfully_received beacons, the routing paths selected from the plurality of transmission channels, the selected set of routing paths including a combination of paths over multiple channels; and

a client, the client receiving beacons through at least one of the transmission channels from at least one of the access nodes.

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- 33. (Previously presented) The mesh network of claim 32, wherein the plurality of channels comprises transmission channels according to at least one of 802.11(a), 802.11(b), 802.11(g), 802.11(n) transmission protocols.
- 34. (Previously presented) The mesh network of claim 32, wherein the access node determining an optimal set of routing paths comprises determining a path quality of the available paths, and selecting the optimal paths based upon a selection criteria.
- 35. (Previously presented) The mesh network of claim 32, wherein the indicators comprise beacons originating at the gateways.
- 36. (Previously presented) The mesh network of claim 35, wherein the beacons are retransmitted by the upstream access nodes after the beacons have been modified to include selected upstream routing information.
- 37. (Previously presented) The mesh network of claim 32, wherein selected upstream paths between each upstream access node and upstream gateways can include a combination of paths, over multiple channels.
- 38. (Previously presented) The mesh network of claim 32, further comprising the access node transmitting a modified indicator over a plurality of channels, the modified indicator including the optimal set of routing paths between the access node and the at least one upstream gateway.
- 39. (Currently Amended) The method of claim 1, wherein the access node simultaneously re-broadcasting beacons corresponding to the selected routing path, over each of the plurality of channels comprises:

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the access node adjusting a link quality and path quality associated with the received beacons based on whether beacons are received within a routing cycle;

the access node retransmitting modified beacons over each of the plurality of channels if the path quality is above a threshold.